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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,040	07/19/2004	Hans H. Liao	6682-63358-09	7115

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EXAMINER

SLOBODYANSKY, ELIZABETH

ART UNIT PAPER NUMBER

1652

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/502,040

Applicant(s)

LIAO ET AL.

Examiner

Elizabeth Slobodyansky, PhD

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-107 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-107 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.                                                |

### **DETAILED ACTION**

This application is a 371 of PCT/US03/01635 published as WO 03/62173.

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered 2<sup>nd</sup> claim 106 has been renumbered 107. Claims 1-107 are pending.

### ***Election/Restrictions***

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-3, 4, 7-12, 13-20, 22-25 and 105, drawn to a cell comprising alanine 2,3-aminomutase activity, wherein alanine 2,3-aminomutase is a mutated lysine 2,3-aminomutase.

Group II, claim(s) 1-3, 5, 7-12, 22-25 and 105, drawn to a cell comprising alanine 2,3-aminomutase activity, wherein alanine 2,3-aminomutase is a mutated leucine 2,3-aminomutase.

Group III, claim(s) 1-3, 6, 21, 22-25 and 105, drawn to a cell comprising alanine 2,3-aminomutase activity, wherein alanine 2,3-aminomutase is a mutated lysine 5,6-aminomutase.

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Group IV, claim(s) 1, 26-34, 89-92 and 96-99, drawn to a cell producing 3-HP and a method of making 3-HP.

Group V, claim(s) 1 and 35-39, drawn to a cell producing acrylate.

Group VI, claim(s) 1, 40-42, 93 and 100-102, drawn to a cell producing 1,3-propanediol and method of making 1,3-propanediol.

Group VII, claim(s) 1, 43-46, 94, 95, 103, 104 and 106, drawn to a cell producing pantothenate, a plant comprising thereof and methods of making pantothenate.

Group VIII, claim(s) 47-67, 69-74, 76 and 107, drawn to a polypeptide comprising alanine 2,3-aminomutase activity, a nucleic acid encoding thereof, a vector, a cell and plant comprising said nucleic acid and a recombinant method of making of said polypeptide.

Group IX, claim(s) 68, drawn to a transgenic animal.

Group X, claim(s) 75, drawn to a binding agent that specifically binds to a polypeptide with alanine 2,3-aminomutase activity.

Group XI, claim(s) 77-81, drawn to a method of making beta-alanine from alpha-alanine.

Group XII, claim(s) 82-88, drawn to a method of identifying a cell comprising alanine 2,3-aminomutase activity.

The inventions listed as Groups I-XII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The inventions listed as Groups I-VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: a special technical feature of each of the inventions of Groups I-VII is a cell comprising specific compounds and having specific functions.

The special technical feature of Group VIII is a polypeptide having alanine-2,3-aminomutase activity, a nucleic acid encoding thereof has a corresponding technical feature. The structure of nucleic acid determines the structure of the polypeptide.

The special technical feature of a binding agent of Group IX is the structure of the binding agent. The structure of the binding agent of Group X is unpredictable from the structure of a polypeptide of Group VIII.

Groups I-VII share no special technical feature with isolated compounds of Groups VIII and X because a cell is a complex entity comprising multiple compounds acting in accord whereas Groups VIII and X are drawn to isolated chemical compounds.

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A transgenic animal of Group IX does not share a special technical feature with either a cell of Groups I-VII or compounds of Groups VIII and X because said animal is a multicellular live organism.

Groups XI and XII do not share a special technical feature because they are drawn to methods employing different cells, having different protocols and producing different effects.

37 CFR 1.475 does not provide for multiple products or methods within a single application and therefore unity of invention is lacking with regard to Groups I-XII.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In order for more than one species to be examined, the appropriate additional examination fees must be paid. The species are as follows:

An alanine 2,3-aminomutase having the amino acid sequence encoded by a nucleic acid of SEQ ID NO:20, a nucleic acid encoding thereof, a vector, cell and plant comprising said nucleic acid, a recombinant method of making alanine 2,3-aminomutase and methods of making various chemical compounds using said alanine 2,3-aminomutase.

An alanine 2,3-aminomutase having the amino acid sequence encoded by a nucleic acid of SEQ ID NO:29, a nucleic acid encoding thereof, a vector, cell and plant comprising said nucleic acid, a recombinant method of making alanine 2,3-aminomutase and methods of making various chemical compounds using said alanine 2,3-aminomutase.

The polypeptides encoded by SEQ ID NO:20 or SEQ ID NO:29 are disclosed as having alanine 2,3-aminomutase activity. Alanine 2,3-aminomutases of SEQ ID NO:21 and 30 lack common structure that is disclosed as responsible for alanine 2,3-aminomutase activity. Furthermore, polypeptides having alanine 2,3-aminomutase activity are known in the art. Therefore, neither polypeptide of SEQ ID NO:21 or SEQ ID NO:30 and corresponding nucleic acids make a contribution over the prior art.

Claims 1-107 are generic.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the

requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The examiner has required restriction between product and process claims. Where

applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined

in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

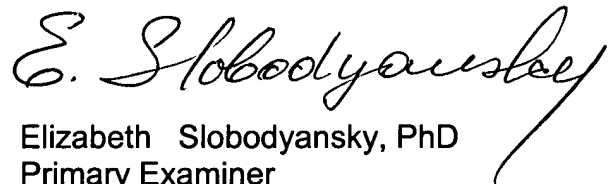
In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai*, *In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.**

Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Slobodyansky, PhD whose telephone number is 571-272-0941. The examiner can normally be reached on M-F 10:00 - 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy, PhD can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Elizabeth Slobodyansky, PhD  
Primary Examiner  
Art Unit 1652

October 10, 2006